Section 9 Summary and Interpretation

9.1 Summary

Cultural Surveys Hawai‘i, Inc. (CSH), under contract to PB Americas, Inc., completed this AIS for the Airport Section 3 for the City and the FTA. The AIS Airport study area is from Kalaloa Drive (just northwest of Hālawa Stream) in the west to Middle Street (just west of Kalihi Stream) in the east, located within the traditional Hawaiian *ahupua‘a* or traditional land divisions of Hālawa (‘Ewa District) and Moanalua (Honolulu District), Island of O‘ahu, TMK: [1] 1-2, 1-5, 1-7, 2-1, 2-3 (Various Plats and Parcels). The focus of this AIS is the majority of the Airport Section 3 construction section, which extends from Station 994+00 Kamehameha Highway at Kalaloa Drive (just northwest of Hālawa Stream) to Station 1248+00 (Kamehameha Highway at Middle Street, just west of Kalihi Stream), for a distance of 25,400 feet or 4.8 miles (7.74 km), and includes three stations.

A total of 47 test excavations were completed. These included the forty test trenches specified in the AISP plus two interpolated test excavations and an additional five test excavations (numbered T-042 through T-046) in the vicinity of the Honolulu International Airport Station (excavated in accordance with the AISP Addendum).

Two archaeological cultural resources were identified: SIHP # 50-80-13-7420 Features 1-3, former twentieth century roads; and SIHP # 50-80-13-7421 Features 1-3, remnants of military warehouse foundations and related structures (Features 1 and 2) and roads (Feature 3).

9.2 Interpretation

9.2.1 Reasons for the Absence of Archaeological Resources in the Airport Section 3 Corridor

9.2.1.1 Shortage of Rainfall

The following map (Figure 266) depicting the annual precipitation in inches for selected locations on O‘ahu (Source: Pacific Disaster Center 2013) contributes to explaining the lack of archaeological finds in the Airport Section 3 corridor. The Honolulu (Honolulu International Airport) rainfall readings are suggested to be typical for the Airport Section 3 portion of the HHCTCP. It may be noted that the annual rainfall in this area is the lowest for the 29 locations on O‘ahu for which rainfall data is reported. The Honolulu (Honolulu International Airport) annual rainfall readings (at 8.0 inches) are at 40.4% of the mean value of 19.8 inches of annual rainfall reported for the 29 recorded locations on O‘ahu. The Airport Section 3 corridor lands could not have supported non-irrigated agriculture. Fertile lands for irrigated agriculture were found on the immediate margins of Hālawa and Moanalua streams but irrigation did not extend laterally very far from these stream mouths.

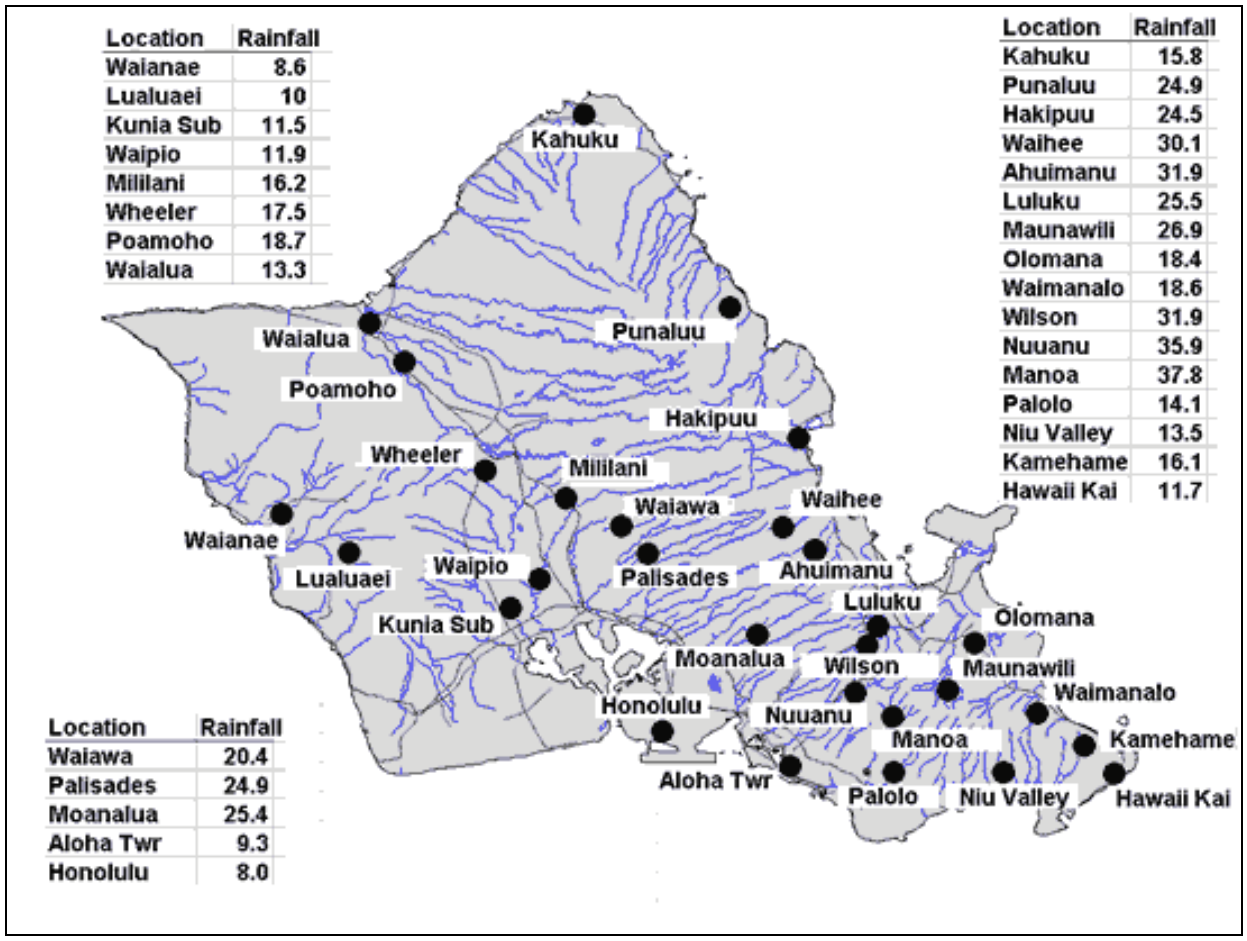

Figure 266. Distribution map and tables showing annual precipitation in inches for selected locations on O‘ahu including the Honolulu (Honolulu International Airport) rain gauge (Source: Pacific Disaster Center 2013)

9.2.1.2 Off the Beaten Path

The Airport Section 3 corridor lies significantly seaward of the alignment of the main pedestrian trail system traversing the southern coastal plain of O‘ahu in an east-west direction (see Map of trails and places mentioned by John Papa ‘Ī‘ī 1959:96; Figure 7). This was a land cut-off from the main Kona District/‘Ewa District traffic. For those who were not of Hālawa and Moanalua Ahupua‘a there may have been little reason to venture into these dry coastal lands.

The *wahi pana* of Āliapa‘akai and Āliamanu along this *mauka* main east-west trail were attractions for early western visitors and would have been places of interest for pre-Contact travelers as well. It is possible that these crater pits of Āliapa‘akai and Āliamanu provided shelter for travelers respites along the route (Maly and Maly 2012:76).

9.2.2 Environmental Reconstruction

Section 8.3.1 briefly summarizes some nine prior efforts at paleo-environmental reconstruction in the immediate vicinity. Most of these prior efforts were focused on what reasonably could have been hoped to be good depositional environments, specifically inland fishponds in calm environments (see Figure 261 and Figure 262). Clearly the extraordinary intensity of fill activities (particularly circa 1942-1943) caused great disruption to the pollen-bearing record with inversions being the norm of relatively clean fill bearing relatively old pollen assemblages overlying sediments with 1930s pollen. The Airport Section 3 corridor does not cross appropriate depositional environments and the information for paleo-environmental reconstruction is limited.

The current study’s reconstruction of a prior Hawaiian environment includes well-known species such as *Sida* (*‘ilima*), *Waltheria* (*‘uhaloa*), and *Vitex* (*pōhinahina*) that are common today but also seemingly includes less well-known species such as *kōlea* (*Myrsine*), *ho‘awa* (*Pittosporum*), *kanawao* (*Broussaisia arguta*), and *‘aweoweo* (*Chenopodium*) and supports and augments prior reconstructions. Several relatively drought tolerant trees are indicated in the pollen record including *Pandanus tectorus* (*hala*), *Acacia* (*koai‘e*) and *Pritchardia* (*loulu*), but whether these actually grew near the Airport Section 3 corridor or are represented by pollen from trees several kilometers upwind remains unclear.

No information was developed regarding environmental change prior to the second half of the 1800s. The evidence of rice and cotton cultivation expands our understanding of commercial use of the coastal areas of Hālawa and Moanalua.

9.2.3 Fill Activities

It seems the observed fill deposits relate to at least four different periods: (1) plantation field expansion dating between circa 1900 and 1940; (2) military grading and preparation of hard, flat surfaces particularly for the storage and movement of stock-piled materials particularly in 1942-1943; (3) grading and filling for airport expansion following WWII; and (4) grading and filling for roadways which spans the widest period from the 1930s to the end of the twentieth century.

Like other sugar companies on O‘ahu in the early twentieth century, the Honolulu Plantation effectively expanded their operations through the movement of locally available sediments. Because sugar cane can thrive in sediments less than 0.40 m thick, it was feasible to transport soil onto lands that formerly had thin or no soil to increase the area for crop production.

Generally these sediments transported to expand sugar cane cultivation lack consolidation and exhibit modern trash inclusions or clear signs of mixing. As such, the determination of early agricultural “fill” deposits from other, later fill deposits is not always clear.

The increase of military activity is clear in a comparison of the 1933 (see Figure 16) and 1943 (see Figure 19) maps. It appears that extremely large areas near the coastline of the Kamehameha/Nimitz alignment were grubbed and graded. Part of the fill activity may have been efforts to dispose of sediments from dredging activities such as the creation of seaplane runways in Ke‘ehi Lagoon. These military-deposited fills tend to be much clearer because of the mixing of earth and marine sediments, the laminar nature of the deposition, compaction for the creation of hard surfaces, the presence of cement slabs and the incorporation of trash (often non-diagnostic glass shards or metal fragments). The identification of two bottles (both manufactured in 1942) within fill deposits provides further evidence of when this fill was deposited. The immediate vicinity of the proposed Honolulu International Airport Station was quite clearly extensively modified for the transportation and storage of military materials via a seaward loop of the OR&L (see Figure 19). The thick concrete slabs observed may have been loading aprons or possibly relate to warehouse foundations to accommodate the supplies delivered by rail.

The reason why some of these military surfaces (particularly in the vicinity of the proposed Honolulu International Airport Station) needed to be covered by up to 1.81 m of additional fill following WWII is not altogether clear but it certainly relates to improvements to Honolulu International Airport.